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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/665,208	09/18/2000	Chang-seok Kang	5649-842	4274

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EXAMINER

MILLS, GREGORY L

ART UNIT	PAPER NUMBER
1763	1C

DATE MAILED: 01/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.	Applicant(s)
09/665,208	KANG ET AL.
Examiner	Art Unit
Thi Dang	1763

(RM) # 15

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) Responsive to communication(s) filed on 13 December 2002.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) Claim(s) 23-25,27-35 and 45-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 45-50 is/are allowed.
- 6) Claim(s) 23-25,30-35 and 51-66 is/are rejected.
- 7) Claim(s) 27-29 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

***Claim Rejections - 35 USC § 103***

1. Claims 23-25 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Moslehi et al.*

*Moslehi* discloses a multi-processing apparatus that has a plasma generator (18) connected to a processing chamber (32) (note Fig. 1; col. 5, lines 15-56). The processing gases connected to the plasma generator includes N<sub>2</sub> O<sub>2</sub> and Ar. It is obvious that the processing chamber of *Moslehi* is capable of depositing a dielectric layer because *Moslehi*'s apparatus is capable depositing films and the type of film to be deposited would depend on the gases that are supplied as reactive chemical compounds. *Moslehi*'s apparatus is also capable cleaning the chamber wall because the gases that can be connected to the processing chamber include etching gases such as HF and HCl, which could be used as cleaning gases. Structurally, the claimed apparatus does not define over that of *Moslehi*.

2. Claims 31-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Moslehi et al* in view of *Henley et al.*

*Moslehi* does not disclose the multi-chamber arrangement of claims 31-35. *Henley* teaches that it is conventional in the art to have a multi-chamber assembly that includes a load lock, a transfer chamber, a deposition chamber, a plasma processing chamber, and a thermal annealing chamber. The claimed "crystallization annealing chamber" broadly reads on the conventional thermal annealing chamber. It would have been obvious to incorporate *Moslehi*'s apparatus in the multi-chamber assembly of *Henley* because such an assembly would enable one in the art to perform multiple processing steps in an efficient manner without exposing the device to the open atmosphere.

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3. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Hideaki* et al (JP 8-64763).

*Hideaki* discloses that it is conventional in the art to successively form on a Si substrate a lower electrode, a Ta<sub>2</sub>O<sub>5</sub> insulating film, an upper electrode, followed by a plasma oxidation treatment (note the English Abstract). It is obvious that, in order to form the electrode layers and the insulating film, means are provided to form such films. It is also obvious that means is provided for the plasma oxidation treatment.

4. Claims 52-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hideaki* et al in view of *Moslehi* et al.

It would have been obvious to form the dielectric layer, the electrode layers and the plasma oxidation disclosed by *Hideaki* using the apparatus of *Moslehi* because *Moslehi*'s apparatus is capable of performing these functions in the chamber. It is just a matter of supplying the appropriate processing gases. The apparatus of *Moslehi* is also capable of crystallization annealing by adjusting the heating means to appropriate annealing temperature.

***Allowable Subject Matter***

5. Claims 45-50 are allowed.

6. Claims 27-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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7. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Thi Dang  
Primary Examiner  
Art Unit 1763